

**AMENDMENTS TO THE DRAWINGS**

Please replace the Application's Drawings with the Replacement Sheets provided herewith.

### REMARKS/ARGUMENTS

Applicant respectfully requests the Examiner to cancel Claim 8. Accordingly, Claims 1-7 and 9-36 are pending in this Application. In the Office Action dated April 5, 2005, the Examiner, *inter alia*:

- 1) allowed Claims 13-36;
- 2) objected to the Drawings;
- 3) objected to the Specification;
- 4) objected to Claim 11;
- 5) rejected Claims 1-8 and 11-12 under 35 U.S.C. §103(a) as allegedly unpatentable over an article by *Numai, et al.* entitled "1.5  $\mu\text{m}$  tunable wavelength filter using a phase-shift-controlled distributed feedback laser diode with a wide tuning range and a high constant gain," Appl. Phys. Lett., May 8, 1989, pp. 1859-60 (the "Numai reference") in view of U.S. Patent No. 6,552,834 to *Bhatia* (the "Bhatia reference");
- 6) rejected Claim 9 under 35 U.S.C. §103(a) as allegedly being unpatentable over the Numai reference in view of the Bhatia reference and in further view of U.S. Patent Application No. 20030180023 to *Hamada* (the "Hamada reference"); and
- 7) rejected Claim 10 under 35 U.S.C. §103(a) as allegedly being unpatentable over the Numai reference in view of the Bhatia reference and in further view of U.S. Patent No. 6,456,766 to *Shaw* (the "Shaw reference").

Applicant respectfully addresses these items below.

#### Allowance of Claims 13-36:

Applicant thanks the Examiner for allowing Claims 13-36. In the Examiner's statement for reasons of allowance of Claims 13-36, the Examiner has selected the independent claims (*i.e.*, Claims 13, 15, 22, 29 and 36) and has offered an indication for their allowance. It is assumed that the Examiner has given these claims their broadest possible construction. Likewise, it is assumed that all elements of all other allowed claims (*i.e.*, Claims 14, 16-21 and 23-35) have also been given the full range of equivalents.

Applicant notes that Claims 18 and 36 have been amended to merely correct minor grammatical errors without making substantive changes to the scope of the claims. Accordingly, Applicant respectfully requests the Examiner to enter the amendments made to Claims 18 and 36.

**Objection to the Drawings:**

In the Office Action, the Examiner objects to the Drawings stating that shading makes them difficult to read. Applicant submits herewith Replacement Sheets believed to be in compliance with 37 C.F.R. §1.121(d). Accordingly, Applicant respectfully requests favorable consideration of the Replacement Drawings and withdrawal of the objection.

**Objection to the Specification:**

In the Office Action, the Examiner objects to the Specification stating that the paragraph number [0044] associated with the Abstract must be removed. Applicant has amended the Abstract to delete any reference to the paragraph number as suggested by the Examiner. Accordingly, Applicant respectfully requests favorable consideration and withdrawal of the objection.

**Objection to Claim 11:**

In the Office Action, the Examiner objects to Claim 11 citing informalities. Applicant has amended Claim 11 and respectfully requests favorable consideration of Claim 11 and withdrawal of the objection.

**Rejection under 35 U. S. C. § 103(a) as allegedly being unpatentable over the Numai reference in view of the Bhatia reference:**

In the Office Action, the Examiner rejects Claims 1-8, 11 and 12 under §103(a) as being unpatentable over the Numai reference in view of the Bhatia reference. Applicant respectfully disagrees.

**Claim 1:**

Specifically, Applicant submits that the Numai reference, either alone or taken in combination with the Bhatia reference, does not disclose or make obvious all the necessary elements as required by Claim 1. Although the Examiner cites to various sections of both references for support, Applicant respectfully submits that neither the Numai or Bhatia references, taken individually or in combination, teach or make obvious, an *active* optical filter comprising a *surface grating coupler having a grating surface emitter photonic integrated circuit*, as required by amended Claim 1.

Accordingly, the Numai and Bhatia references fail to render the Applicant's invention obvious. There is also no suggestion or motivation in the Numai and Bhatia references to prompt one of ordinary skill to selectively combine elements as required by amended Claim 1. Applicant therefore respectfully submits that Claim 1 is patentably distinguishable over the art cited and requests favorable reconsideration and withdrawal of the rejection to Claim 1.

Claims 2-7, 11 and 12:

Claims 2-7, 11 and 12 ultimately depend from allowable Claim 1 and thus are also allowable for the reasons set forth above. Accordingly, the Numai and Bhatia references fail to render the Applicant's invention obvious. There is also no suggestion or motivation in the Numai and Bhatia references to prompt one of ordinary skill to selectively and non-inventively combine elements as required by Claims 2-7, 11 and 12. Accordingly, Applicant respectfully submits that Claims 2-7, 11 and 12 is patentably distinguishable over the art cited. In light of the arguments above, Applicant respectfully requests favorable reconsideration and withdrawal of the rejection to Claims 2-7, 11 and 12.

Claim 8:

Applicant has requested the Examiner to cancel Claim 8. Accordingly, the rejection to Claim 8 is now moot. Applicant therefore respectfully requests the withdrawal of the rejection to Claim 8.

**Rejection under 35 U. S. C. § 103(a) as allegedly being unpatentable over the Numai reference in view of the Bhatia reference and in further view of the Hamada reference:**

In the Office Action, the Examiner rejects Claim 9 as allegedly being unpatentable under §103(a) over the Numai reference in view of the Bhatia reference as applied to Claim 1 above and in further view of the Hamada reference. Applicant disagrees.

Specifically, Applicant submits that the Numai reference, either alone or taken in combination with the Bhatia reference or Hamada reference, does not disclose or make obvious all the necessary elements as required by Claim 9. Although the Examiner cites to various sections of both references for support, Applicant respectfully submits that neither the Numai, Bhatia or Hamada references, taken individually or in combination, teach or make obvious an *active* optical filter comprising a *surface grating coupler having a grating surface emitter photonic integrated circuit*, as required by amended Claim 1 and ultimately by Claim 9. Moreover, neither the Numai, Bhatia or Hamada references, taken individually or in combination, teach or make obvious an active optical filter of Claim 1 comprising a *photonic crystal*, as required by Claim 9.

Accordingly, the Numai, Bhatia and Hamada references fail to render the Applicant's invention obvious. In addition, there is also no suggestion or motivation in the Numai, Bhatia or Hamada references to prompt one of ordinary skill to selectively combine elements as required by Claim 9. Applicant therefore respectfully submits that Claim 9 is patentably distinguishable over the art cited and requests favorable reconsideration and withdrawal of the rejection to Claim 9.

**Rejection under 35 U. S. C. § 103(a) as allegedly being unpatentable over the Numai reference in view of the Bhatia reference and in further view of the Shaw reference:**

In the Office Action, the Examiner rejects Claim 10 as allegedly being unpatentable under §103(a) over the Numai reference in view of the Bhatia reference as applied to Claim 1 above and in further view of the Shaw reference. Applicant disagrees.

Specifically, Applicant submits that the Numai reference, either alone or taken in combination with the Bhatia reference or Shaw reference, does not disclose or make obvious an *active* optical filter comprising a *surface grating coupler having a grating surface emitter photonic integrated circuit*, as required by amended Claim 1 and ultimately by Claim 10. Moreover, neither the Numai, Bhatia or Hamada references, taken individually or in combination, teach or make obvious an active optical filter of Claim 1 comprising a *trench coupler*, as required by Claim 10.

Accordingly, the Numai, Bhatia and Shaw references fail to render the Applicant's invention obvious. There is also no suggestion or motivation in the Numai, Bhatia or Shaw references to prompt one of ordinary skill to selectively combine elements as required by Claim 10. Applicant therefore respectfully submits that Claim 10 is patentably distinguishable over the art cited and requests favorable reconsideration and withdrawal of the rejection to Claim 10.

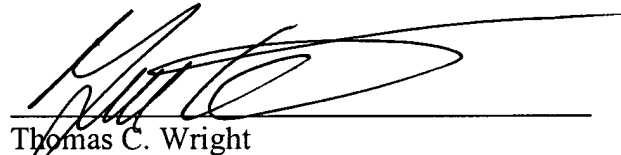
### CONCLUSION

In light of the remarks and arguments presented above, Applicant respectfully submits that the pending and amended claims in the Application are in condition for allowance. Favorable consideration and allowance of Claims 1-7 and 9-36 is therefore respectfully requested.

Applicant hereby authorizes the Commissioner to charge any fees, other than the issue fee, that may be required by this paper to Deposit Account 07-0153. If the Examiner has any questions or comments, or if further clarification is required, it is requested that the Examiner contact the undersigned at the telephone number listed below.

Respectfully submitted,

GARDERE WYNNE SEWELL LLP

A handwritten signature in black ink, appearing to read 'T. Wright', is written over a horizontal line.

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